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BARK THICKNESS MEASUREMENTS OF ROBUSTA EUCALYPTUS...not biased by position

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ABSTRACT: Bark thickness in robusta eucalyptus trees was measured at five different sites ranging from wet to dry and at 12 positions around the breast height circumference. Analysis of the data suggests that measurements anywhere on the circumference will not introduce bias in estimating tree volume.
RETRIEVAL TERMS: bark thickness; measurement procedure; bias; *Eucalyptus robusta.*
OXFORD: 176.1 *Eucalyptus robusta*:523.1.

Robusta eucalyptus *(Eucalyptus robusta)* trees have thick, soft, fibrous bark. The thickness of the bark is variable around the circumference of the tree at breast height. Erroneous bark thickness measurements can lead to significant error in estimating wood volume in trees. Therefore, the forest manager needs to know if bias is introduced when bark thickness is always measured on the uphill side of a tree.

To determine the possibility of bias, I measured trees at five different sites, ranging from wet to dry. A bark punch was used to measure bark thickness at breast height at 12 positions around the circumference of each tree *(fig. 1)*. Position No. 1 was the uphill position; No. 7, downhill. After measuring 89 trees and analyzing the data for variance, I concluded that no position (relative to slope orientation) around the circumference of a tree is superior for measuring bark thickness *(tables 1, 2)*.

Table 1.–Statistical significance of bark thickness measurements, by position around tree circumference

Position[1]	Mean bark thickness	Standard deviation	Coefficient of variation
	Inch		
1	1.90	0.76	0.40
2	1.85	.79	.43
3	1.85	.77	.42
4	1.72	.64	.37
5	1.73	.70	.41
6	1.85	.79	.43
7	1.84	.79	.43
8	1.83	.70	.39
9	1.77	.77	.44
10	1.76	.77	.44
11	1.79	.65	.36
12	1.78	.75	.42

[1] 1 = uphill; 7 = downhill

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Figure 1.—*Stereogram of typical bark of robusta eucalyptus.*

Table 2.—Analysis of variance of measurements of bark thickness

Item	Location	Residual	Total
Degree of freedom	11	1056	1067
Sum of squares	2.8023	583.2285	586.0308
Mean square	.2548	.5523	–
F ratio	.4613	–	–

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